

CLAIMS

What is claimed is:

1. A system for vascularizing a selected portion of the myocardium of the heart of a living being, the selected portion of the myocardium having a plurality of channels at spaced locations from one another within the selected portion of the myocardium, said system comprising a plurality of elongated inserts and a deployment instrument for deploying said inserts into respective ones of the channels, at least a portion of each of said inserts being formed of a resorbable material, said inserts when deployed within the channels being resistant to migration and not significantly limiting the contractility of the being's heart, said inserts serving to elicit a foreign body or healing response in the tissue making up the selected portion of the myocardium to form plural blood-carrying lumens in the myocardium and enhance to flow of blood to the myocardium.
2. The system of Claim 1 wherein said inserts are arranged to enable blood to flow therethrough.
3. The system of Claim 1 wherein said system includes means to limit the depth of penetration of said inserts into the wall of the myocardium.
4. The system of Claim 1 wherein said deployment instrument is arranged to be inserted into the interior of the heart to introduce said inserts into the myocardium via the endocardium.
5. The system of Claim 1 wherein said deployment instrument is arranged to be inserted into the chest cavity to introduce said inserts into the myocardium via the epicardium.
6. The system of Claim 1 wherein said system includes a piercing device for producing the channels in the myocardium.

7. The system of Claim 6 wherein said deployment instrument is arranged to deploy said inserts into respective ones of the channels after the formation thereof.

8. The system of Claim ⁶~~16~~ wherein said deployment instrument includes said piercing device and wherein said deployment instrument is arranged to deploy said inserts into respective ones of the channels.

¹³~~9.~~ The system of Claim 1 wherein each of said inserts is arranged to pierce the myocardium to produce a respective one of the channels.

⁹~~10.~~ The system of Claim 6 wherein said piercing device comprises a member arranged to mechanically pierce into the myocardium to produce the channels.

¹⁰~~11.~~ The system of Claim 6 wherein said piercing device comprises means for applying energy to the myocardium to produce the channels.

¹¹~~12.~~ The system of Claim ¹⁰~~11~~ wherein said energy is selected from the group consisting of one or more of mechanical, electrical, thermal, electromagnetic, vibratory, hydraulic, pneumatic, and nuclear energy.

¹²~~13.~~ The system of Claim ¹¹~~12~~ wherein said piercing device comprises means for applying a biologically active material to the myocardium to result in the production of the channels.

14. The system of Claim 1 wherein each of said inserts comprises an anchor for anchoring it in position within the myocardium.

15. The system of Claim 14 wherein each of said inserts additionally comprises an elongated portion coupled to said anchor.

16. The system of Claim 15 wherein said elongated portion comprises a filament.

17. The system of Claim 1 additionally comprising means for monitoring the cardiac cycle and for coordinating the operation of said deployment device with the cardiac cycle.

18. The system of Claim 1 wherein said system includes stabilizing means for stabilizing the position of said deployment instrument adjacent the myocardium during the deployment of said inserts.

19. The system of Claim 1 wherein said inserts additionally comprises one or more of the group consisting of pharmaceuticals, biologically active materials, growth factors, radioactive materials, and radiopaque materials.

20. A method of increasing blood flow in the wall of the myocardium of a living being comprising the steps of:

- (a) providing a plurality of elongated small diameter inserts, each of which includes at least one portion formed of a resorbable material;
- (b) forming a plurality of lumens in the myocardium at spaced locations from one another and in communication with the interior of the heart; and
- (c) introducing said inserts into said lumens, whereupon said inserts elicit a foreign body or healing response in the tissue making up the selected portion of the myocardium to form plural blood-carrying lumens in the myocardium and enhance to flow of blood to the myocardium.

21. The method of Claim 20 wherein said inserts are inserted into the wall of the myocardium via the endocardium.

22. The method of Claim 53 wherein said inserts are inserted into the wall of the myocardium via the epicardium.

23. The method of Claim 1 wherein said inserts are introduced into said channels after the formation of said channels in the myocardium.

24. The method of Claim 23 wherein said channels are formed by piercing the myocardium.

25. The method of Claim 24 wherein each of said inserts is arranged to pierce the myocardium to produce a respective one of said channels.

26. The method of Claim 24 wherein said channels are produced prior to the introduction of said inserts therein.

27. The method of Claim 24 wherein said piercing of the myocardium to produce said channels is accomplished by mechanical action.

28. The method of Claim 24 wherein said piercing of the myocardium to produce said channels is accomplished by the application of energy to the myocardium.

29. The method of Claim 28 wherein said energy is selected from the group consisting of one or more of mechanical, electrical, thermal, electromagnetic, vibratory, hydraulic, pneumatic and nuclear energy.

30. The method of Claim 24 wherein said piercing of the myocardium to produce said channels is accomplished by applying a biologically active material to the myocardium.

31. The method of Claim 20 additionally comprising the step of monitoring the cardiac cycle and coordinating the deployment of said inserts with the cardiac cycle.

32. The method of Claim 20 additionally comprising the step of providing one or more of the group consisting of pharmaceuticals, biologically active materials, growth factors, radioactive materials, and radiopaque materials in the myocardium.